USSR

UDC 615.616.24-003.656.6

SLINCHENKO, N. Z.

"Effect of Tuberculosis INfection on the Development of Dust Pneumofibrosis in Miners"

V sb. Materialy XXI-XXII plenumov Resp. komis. po bor'be s silikozom (Materials of the Twenty-first to Twenty-second Plenum of the Republic Commission for Controlling Silicosis--Collection of Works), Kiev, Naukova dumka, 1972, pp 104-112 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3,54.872)

Translation: A morphological study was made of the lungs of 50 miners sick with pneumoconiosis and coniotuberculosis and 100 rats subjected to powdered quartz inhalation and BCG vaccination. It was demonstrated that the mixed dust-infection process has characteristic features in the formation of fibrosis elements. Data are presented from a hisochemical and histoimmunologic study of hyalinosis process in the presence of pneumoconiosis and tuberculosis. The aspects of the application of enzymes of the fibrilolysin and carboxypeptidase type for prevention of the development

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SLINCHENKO, N. Z., Materialy XXI-XXII plenumov Resp. komis. po bor'be s silikozom, 1972, pp 104-112

of massive hyalinosis are noted. The bibliography has 21 entries.
USSR. Krivoy Rog, Institute of Hygiene of Labor and Professional Disease.

2/2

USSR

UDC 621.315.592

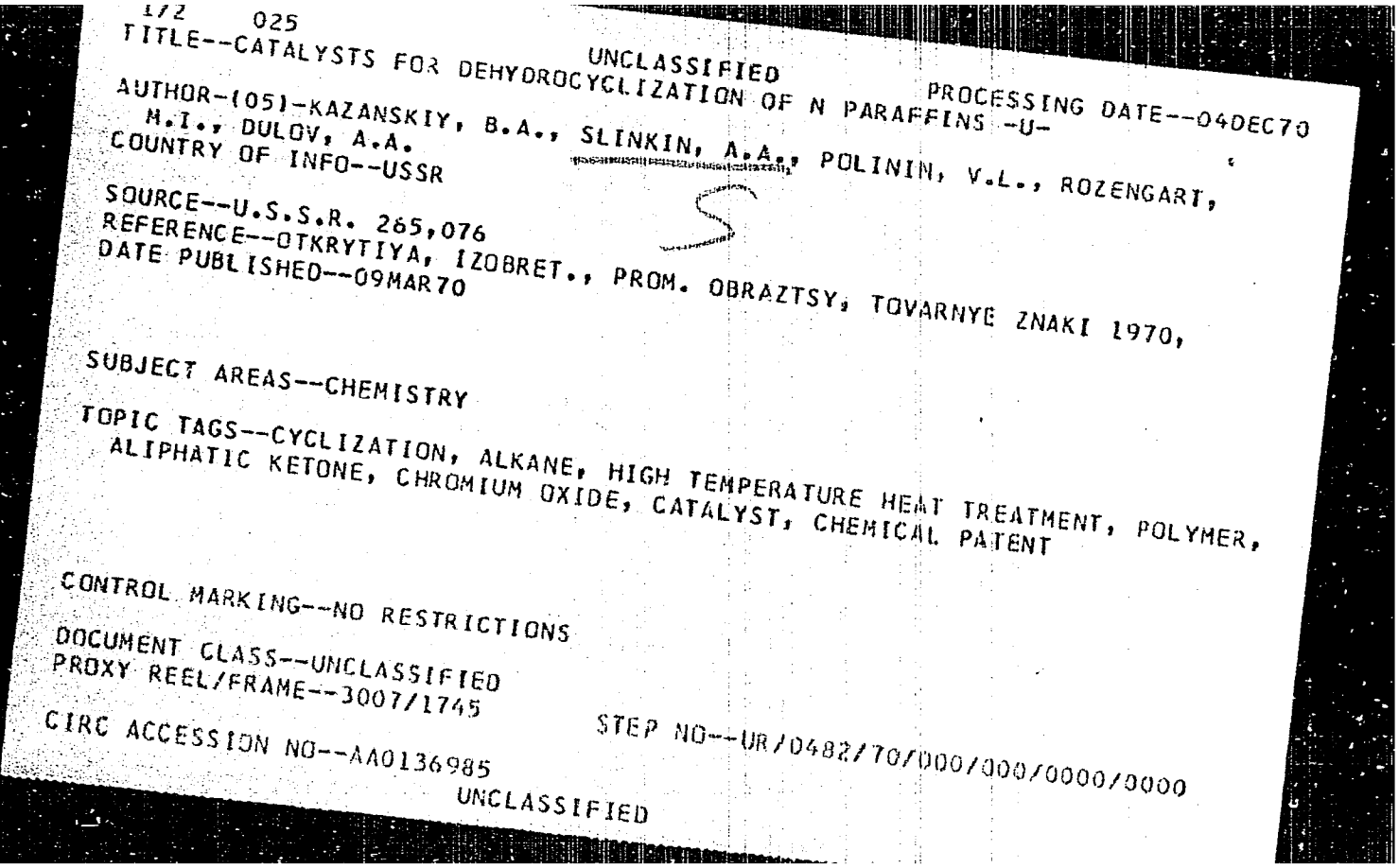
DULOV, A.A., SLINKIN, A.A.

"Organic Semiconductors. Polymers With Conjugate Bonds"

Organicheskiye poluprovodniki. Polimery s sopryazhennymi svyazyami (cf.English above), Moscow, "Nauka," 1970, 127 pp, ill., 38 k (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B20K)

Translation: Polymers with conjugate bonds pertain in particular to organic semiconductors. These compounds give rise to the greatest interest, both in theoretical and practical respects. The characteristics and regularities of behavior of organic semiconductors and the principles of their synthesis and examples of use are described, contemporary theoretical opinions on the nature of these substances are considered, as well as prospects for development -- in particular the possibility of obtaining superconductors maintaining superconductivity at normal temperatures. Summary.

1/1



1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYSTS FOR DEHYDROCYCLIZATION OF N PARAFFINS -U-

AUTHOR-(05)-KAZANSKIY, B.A., SLINKIN, A.A., POLININ, V.L., ROZENGART, M.I., DULOV, A.A.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,076
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, ALKANE, HIGH TEMPERATURE HEAT TREATMENT, POLYMER, ALIPHATIC KETONE, CHROMIUM OXIDE, CATALYST, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1745
STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0136985
UNCLASSIFIED

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AA0136985 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRODUCT OF THERMAL TREATMENT (400-600DEGREES) OF A POLYMER BASED ON PURE METHYL BETA,CHLOROVINYL KETONE OR WITH AN ADDITIVE CONSISTING OF 0.1-5 WT. PERCENT CR SUB2 O SUB3 IS USED AS A CATALYST FOR DEHYDROCYCLIZATION OF N PARAFFINS.

FACILITY: INSTITUT ORGANICHESKOY KHIMI I IM. N. D. ZELINSKOGO.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 016

TITLE--EPR STUDY OF ANTHRACENE ADSORPTION ON NICKEL OXIDESILICON DIOXIDE CATALYSTS -U-

AUTHOR-(02)-SLINKIN, A.A., LOKTEV, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 959

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--EPR SPECTRUM, ANTHRACENE, NICKEL OXIDE, SILICON DIOXIDE, CATALYST, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1004 STEP NO--UR/0062/70/000/004/0959/0959

CIRC ACCESSION NO--AP0138032

UNCLASSIFIED

2/2 016 UNCLASSIFIED

CIRC ACCESSION NO--AP0138032 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACID BASE PROPERTIES OF NIO-SIL SUB2 CATALYSTS WERE STUDIED BY ADSORPTION OF ANTHRACENE FROM C SUB6 H SUB6 SOLNS., EVAPN. OF THE SOLVENT IN VACUO, AND RECORDING EPR SPECTRA OF THE RESIDUAL SPECIMEN. PURE SIO SUB2 AND SPECIMENS WITH DEPOSITED NI(OH) SUB2 DID NOT PRODUCE ANY EPR SIGNALS AFTER ADSORPTION OF ANTHRACENE ON THEM. HOWEVER AN INTENSE SIGNAL DEVELOPED ONLY AFTER ADSORPTION OF ANTHRACENE ON HEAT TREATED NIO-SIO SUB2 CATALYSTS IN WHICH THE NI PRIME2POSITIVE ION ENTERS THE SIO SUB2 LATTICE. THIS EVIDENTLY PRODUCES A STRONG ACIDIC CENTER WHICH IS ABLE TO ADSORB ANTHRACENE IN AN ION RADICAL FORM. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

SLIN'KO M.G.

Chemical reactors

MODELING CHEMICAL REACTORS

(Conference in Novosibirsk)

Article by Corresponding Member AS USSR M. G. Slin'ko, Moscow, Vestnik Akademii Nauk SSSR, Russian, No 11, November 1971, pp 106-108]

More than 10 years ago, at the very beginning of studies dealing with mathematical modeling of chemical processes and chemical reactors, the idea was advanced to break down a complex industrial chemical process into its chemical and physical components, with separate investigation and subsequent synthesis of a general mathematical model. This approach has been developed in recently-elaborated principles of structuring multilevel mathematical models: construction of the model begins at the molecular level, gradually proceeding to subsequent levels, until the scale of an industrial reactor is reached. Due to a systemic approach to the study of chemical reactors this idea has become enriched with new content.

These problems were at the center of attention of the Fourth All-Union Conference on Chemical Reactors, held on 7-11 June in Novosibirsk at the Siberian Department of the Academy of Sciences USSR Institute of Catalysis. The conference was attended by representatives of 64 organizations from 30 Soviet cities, plus guests from Bulgaria and the GDR. Eighty papers were submitted and discussed at the plenary and section meetings. They demonstrated that during the 3 years which have passed since the Third Conference substantially more research has been conducted on the mathematical modeling of chemical processes and powerful chemical reactors, that processes and reactors are being further developed and refined together with practical application of modeling principles in this area.

The conferees examined multilevel models of reactors with fixed and pseudoliquified catalyst layer, with the participation of liquid, solid and gaseous phases. For the first time at meetings devoted to modeling industrial catalytic processes in reactors a comparison was made between preliminary results of modeling with operational data from reactors for obtaining vinyl chloride, phthalic anhydride from naphthalene and orthoxylene,

1/2 032 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--USE OF CHEBYSHEV'S EQUALIZATION METHOD TO CONSTRUCT A KINETIC MODEL OF A COMPLEX CHEMICAL REACTION -U-

AUTHOR-(03)-SPIVAK, S.I., TIMOSHENKO, V.I., SLINKO, M.G.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(3), 580-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, CHEMICAL REACTION, CATALYST, CHEMICAL KINETICS, OXYGEN, HYDROGEN, CARBON MONOXIDE, CARBON DIOXIDE, BUTADIENE, DEHYDRATION, CHROMIUM COMPOUND, POTASSIUM COMPOUND, NICKEL COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1232 STEP NO--UR/0020/70/192/003/0580/0582

CIRC ACCESSION NO--AT0138244

UNCLASSIFIED

2/2 . 032 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0138244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRINCIPLES OF THE CHEBYSHEV EQUALIZATION METHOD FOR CONSTRUCTING A KINETIC MODEL OF A COMPLEX CHEM. REACTION ARE OUTLINES MATH. TO CHECK THE APPLICABILITY OF THE CHEBYSHEV METHOD, EXPTL. RESULTS ON THE KINETICS OF THE OXIDATIVE DEHYDRATION OF N,BUTYLENE WERE ANALYZED. THE PROCESS WAS CARRIED OUT ON A CR-K-NI PHOSPHATE CATALYST, IN A CIRCULATORY STREAM SYSTEM, THE PRODUCTS UNDERGOING FURTHER IRREVERSIBLE REACTIONS. THE EXPTL. RATES OF CONVERSION OF INDIVIDUAL COMPONENTS WERE DETO. FOR N,BUTYLENE, BUTADIENE, O SUB2, H SUB2, CO, AND CO SUB2. EQUATIONS FOR THE WHOLE SYSTEM IN CHEBYSHEV'S TERMS WERE WRITTEN, SOME PHYS. RESTRICTIONS WERE ADOPTED, AND THE COMPUTATIONS WERE PERFORMED. FOR COMPARISON, EXPTL. RESULTS WERE ALSO TREATED BY THE KEY COMPONENTS METHOD (USING 6 VARIANTS OF 4 KEY CHEMICALS) AND BY THE METHOD OF LEAST SQUARES. THE RESULTS ARE TABULATED. THE TABLE SHOWS THAT, ACCORDING TO BOTH THE KEY COMPONENT METHOD AND THE LEAST SQUARE METHOD, THE RATES OF CONVERSION ALONG CERTAIN PATHS ARE NEG., WHICH IS AN ABSURD CONCLUSION FOR THESE IRREVERSIBLE PATHS. FURTHERMORE, THE TABLE SHOWS THAT THE KEY COMPONENTS METHOD GIVES WIDELY DIFFERING RESULTS DEPENDING ON THE CHOICE OF KEY COMPONENTS. HOWEVER, THE RESULTS OBTAINED BY USING THE CHEBYSHEV'S EQUALIZATION METHOD ARE POS. VALUES, REASONABLE IN MAGNITUDE, AND CORRESPONDING PHYS. TO THE PROCESS INVESTIGATED.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--KINETIC MODEL OF THE DEHYDRATION OF ALPHA HYDROXYISOBUTYRIC AICO TO METHACRYLIC ACID -U-

AUTHOR-(05)-VYTNOV, G.F., MATROS, YU.SH., SLINKO, M.G., LEONTYEV, YA.A., KUZNETSOV, YU.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 167-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDRATION, BUTYRIC ACID, HYDROXYL RADICAL, INTEGRAL EQUATION, MATHEMATIC MODEL, CATALYST, METHACRYLIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0815 STEP NO--UR/0064/70/046/003/0167/0169

CIRC ACCESSION NO--AP0124482

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124482

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A KINETIC MODEL, WHICH AEQUATELY DESCRIBED THE DEHYDRATION OF ME SUB2 C(OH)CO SUB2 H TO CH SUB2:CMECO SUB2 H OVER A CA SUB3(PO SUB4)SUB2 CATALYST, IS DEVELOPED BY TREATING EXPTL. DATA ANAL. THE MODEL IS DESCRIBED IN TERMS OF 3 INTEGRAL EQUATIONS AND ACCOUNTS WELL FOR THE DECREASE IS CATLYST REACTIVITY AS A FUNCTION OF TIME.

UNCLASSIFIED

1/2 . 034 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--HYDRODYNAMICS OF A GAS LIQUID REACTION VESSEL WITH A FLUIDIZED BED OF SOLIDS -U-

AUTHOR-(03)-YERMAKOVA, A., ZIGANSHIN, G.K., SLINKO, M.G.

COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(1), 95-101

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FLUIDIZED BED, HYDRODYNAMICS, PRESSURE GRADIENT, SOLID STATE, FLUID PHASE, AIR FLOW, HEPTANE, GLYCEROL, GLASS SURFACE PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0124 STEP NO--UR/0459/70/004/001/0095/0101

CIRC ACCESSION NO--AP0103804

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0103804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPTL. RESULTS OF THE HYDRODYNAMIC STUDY OF A 3 PHASE FLUIDIZED BED (TFB) GAS LIQ. SOLID ARE PROCESSED FROM THE POINT OF VIEW THAT THE WHOLE SYSTEM IS A SYNTHESIS OF 1 SIMPLE SYSTEMS: A GAS LIQ. FOAM AND A LIQ. SOLID FLUIDIZED BED. THE MEASUREMENTS WERE PERFORMED UNDER THE FOLLOWING CONDITIONS: SOLID PHASE GLASS BALLS DIAM. 0.6-2.0 MM; SYSTEMS WATER AIR, WATER SOLNS. OF GLYCEROL AIR, N HEPTANE AIR; DIAM. OF THE APP. 100 AND 200 MM, VELOCITIES OF THE GAS AND LIQ. 0.0-62, AND 0.0-10 CM PER SEC, RESP., ON THE FREE CROSS SECTION. THE BEHAVIOR OF THE TFB WAS OBSD. VISUALLY AND THE FOLLOWING QUANTITIES WERE RECORDED: THE BIGINNING OF THE FLUIDIZATION IN THE 2 PHASE SYSTEM LIQ. SOLID, THE BEGINNINGS OF THE NONHOMOGENEOUS AND HOMOGENEOUS FLUIDIZATION IN THE TFB, THE GAS CONTENT AND THE PRESSURE DROP OF THE TFB. THE MATH. TREATMENT OF THE CURVES CHARACTERIZING THE AREAS OF HOMOGENEOUS FLUIDIZATION IN TFB AND THE EQUATION FOR CALCG. THE PRESSURE DROP OF THE TFB ARE PRESENTED. FACILITY: INST. KATAL., NOVOSIBIRSK, USSR.

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Acc. Nr: AP0036523 Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 17-23

ADSORPTION OF VARIOUS SUBSTANCES FROM THEIR SOLUTIONS IN HEXANE AND CARBON TETRACHLORIDE ON HYDRIDE-POLYSILOXANE XEROGEL AND SILICA GEL

Budkevich, G. B.; Slinyakova, I. B.; Neymark, I. Ye.

Summary

The adsorption on silica gel and hydride-polysiloxane xerogel has been studied in the following two-component liquid systems: benzene-hexane, acetone-hexane, dioxane-hexane, benzene-CCl_4, dioxane-CCl_4, nitrozenzen-CCl_4, chlorobenzene-CCl_4, phenol-CCl_4 and benzaldehyde-CCl_4 as well as in the system benzene-CCl_4 on partially hydrated hydride-polysiloxane xerogel. The excessive adsorption maximum of all the substances studied on hydride-polysiloxane xerogel is almost by an order of magnitude less than on silica gel. The adsorption extent of various substances on hydride-polysiloxane from their solutions in CCl_4 and hexane is determined by the donor-acceptor properties of xerogel surface and of the molecules being adsorbed.

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REEL/FRAME 19721371

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UDC 541.183.26:541.182.644:546.287

SLINYAKOVA, I. B., KURENNAYA, L. I., and NEYMARK, I. YE., Institute of Physical Chemistry imeni L. V. Pisarzhevskiy, Academy of Sciences UkrSSR

"The Synthesis and Adsorption Properties of Mixed Silico-Polyhydridesiloxane Adsorbents"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 38, No 9, Sep 72, pp 900-904

Abstract: Silico-polycydridesiloxane adsorbents were prepared by coprecipitation of gels of polyhydridesiloxane and silicic acid upon acid hydrolysis with HCl of a mixture of triethoxysilane and tetraethoxysilane according to $HSi(OEt)_3 + Si(OEt)_4 + 7H_2O \rightarrow HSi(OH)_3 + Si(OH)_4 + 7EtOH$. Combined polycondensation of $HSi(OH)_3$ and $Si(OH)_4$ took place. By varying the ratio of $HSi(OEt)_3$ to $Si(OEt)_4$, gels with different ratios of ≡Si-H to ≡Si-OH groups were obtained. The xerogels derived from the lyogels exhibited different properties depending on whether the latter were washed with hexane or dioxane before drying. It was established by viscosimetry that the process of gel formation slowed down with an increasing ratio of ≡Si-H groups. Isotherms of adsorption of hexane, MeOH, and H_2O vapors on the xerogels were determined.
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SLINYAKOVA, I. B., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol 38, No 9, Sep 72, pp 900-904

Reduction of the content of ≡Si-H favored formation of structures with fine pores, reduced the total pore volume, and lowered the limiting adsorption volume of the pores for hydrocarbons (C_6H_{14} and PhH). With an increasing content of ≡Si-OH groups the adsorption capacity for MeOH and H_2O increased at low relative pressures, but decreased in the capillary condensation range because of changes in the pore structure that involved formation of finer pores.

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1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYTIC DECOMPOSITION OF HYPOPHOSPHITES 6. ON THE ROLE OF SOME ORGANIC COMPOUNDS IN THE PROCESS OF CATALYTIC DECOMPOSITION OF

AUTHOR-(03)-LUNECKAS, A., PROKOPTCHIK, A., SLIOGERIENE, E.

COUNTRY OF INFO--USSR

SOURCE--TRUDY AKADEMII NAUK LITOVSKOY SSR, SERIYA B, 1970, VOL 1(60), PP 17-26

DATE PUBLISHED--01APR69

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHOSPHORUS COMPOUND, NICKEL, COBALT, METAL REDUCTION, ION, NONMETALLIC CATALYST, CITRIC ACID, HYDROGENATION, THERMAL ANALYSIS, CATALYST ACTIVITY, ELECTROLESS PLATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0619 STEP NO--UR/0469/70/001/060/0017/0026

CIRC ACCESSION NO--AT0136079

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0136079

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF SOME ORGANIC ACIDS ON THE REACTION OF THE CATALYTIC HYPOPHOSPHITE DECOMPOSITION IN THE PRESENCE OF NICKEL AND COBALT WAS INVESTIGATED AT PH EQUALS 5.5 AND 60DEGREESC. IT WAS ESTABLISHED THAT THE ACCELERATING ACTION OF EDTA AND CITRIC ACID WAS CONNECTED WITH THEIR INFLUENCE ON THE AREA AND STATE OF THE CATALYST SURFACE. IT WAS SHOWN THAT WHEN THE UNSATURATED ORGANIC ACIDS WERE PRESENT BESIDES THE HYPOPHOSPHITE DECOMPOSITION, THE HYDROGENATION REACTION OF UNSATURATED BONDS TOOK PLACE. THIS PROCESS HAD NEGATIVE INFLUENCE ON THE PLATING RATE AND HYPOPHOSPHITE EFFICIENCY IN THE ELECTROLESS NICKEL AND COBALT PLATING. THE ASSUMPTION WAS MADE THAT HYDRIDE IONS FORMED IN THE COURSE OF HYPOPHOSPHITE DECOMPOSITION TOOK PLACE IN THE METAL ION REDUCTION PROCESS. FACILITY: LABOUR RED BANNER ORDER INSTITUTE OF CHEMISTRY AND CHEMICAL TECHNOLOGY OF THE ACADEMY OF SCIENCES OF THE LITHUANIAN SSR.

UNCLASSIFIED

USSR

UDC 621.791.763.1.04

SLIOZBERG, S. K., MIKHAYLOVA, E. M., and GINSBURG, S. K., All-Union Scientific Research Institute of Electric Welding Equipment

"Selecting an Alloy for the Electrodes of Spot Welding Machines for Low-Carbon Steels"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 59-61

Abstract: Results are presented of testing Br. Kh double chromium bronze, Mts5 chromium-zirconium alloy, and Br. Kh chromium bronze with 0.4% Cu and small additions of zirconium and titanium as alloys for the electrodes of spot welding machines for low-carbon steels. The tests indicated that chromium bronze provides insufficient strength, especially at high operating speeds. Small additions of zirconium and titanium improve the plasticity of chromium bronze significantly, especially at increased temperature, where the electrodes operate at a greater welding rate. The addition of titanium also increases the creep strength.

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SLIPCHENKO, L. S.

JPRS 58081

6 April 1973

UDC (669.24'65:546.5:(54-165+4.20.18)

PHASE COMPOSITION OF Ni-Sn ALLOYS HARDENED FROM THE LIQUID STATE

[Article by A. F. Polesya, L. S. Slipchenko, Dnepropetrovsk State University, Department of Metal Physics; Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, Russian, No 3, 1972, submitted 7 September 1971, pp 128-131]

The Ni-Sn system is important for analysis of the formation of structure during rapid cooling of melts for several reasons. The components of the given system differ substantially in electron structure and character of bond forces. The presence of several intermediate phases in the system [1] is evidence of an inhomogeneous concentration dependence of reaction between the components. Certain phases, i.e., α-Ni, Ni_3Sn, ε, have variable composition, which is one of the conditions of expansion of the range of their existence during hardening from the liquid state [2, 3].

The structure of rapidly crystallizing alloys basically in the range of compositions corresponding to the two-phase states in equilibrium is analyzed in this article.

The alloys were made from electrolytic nickel and spectrally pure tin. Briquettes of the corresponding composition, weighing 25 g, were melted in a high-frequency furnace in a vacuum. Since weight losses were 0.1-0.2 g, the composition of the alloys was practically the same as the theoretical. Thin, rapidly crystallizing films were obtained by shooting small droplets of the melt (0.5 g) onto the inner surface of a copper cylinder, rotating at 8,000 rpm. Films with a thickness to 10 micron were used for the investigation. X-rays were taken in filtered CuK_α-emission in a x-ray diffraction chamber and URS [expansion unknown]. The periods of the α-Ni, ε' and Ni_3Sn (LT) phases were computed according to the lines arranged in the interval of angles from 43 to 72°. Taylor's graphic interpolation method [4] was used to exclude errors.

In alloys 1, 2 and 3 (Table 1), during hardening from the molten state, tin saturated nickel base solid solution crystallizes first. The

lattice periods of metastable α-solid solution lie on the straight line of the dependence of period on composition of the alloy (Figure 1), found by extrapolating the corresponding dependence for alloys hardened in the solid state [5]. This indicates expansion of the range of existence of the solid solution (α-Ni) and also indicates the coincidence of the composition of the metastable solid solution and the initial alloys. The maximum concentration of Sn which we established in (α-Ni)-solid solution is 16.8% atomic (alloy 3), which is significantly higher than the maximum equilibrium solubility (10.4% atomic) of Sn in Ni [1, 5]. Since the interval from 16.8 to 19.2% Sn was not investigated, the maximum saturation of α-solid solution with tin may be somewhat higher than 16.8%.

Table 1. Phase Composition of Rapidly Crystallized Films and Lattice Periods of Phases

1) № сплава	2) ат. %	3) Фазовый состав	4) Периоды решетки, Å: a	b	c
1 2 3	10,4 14 16,8	α-Ni 5) (тип A_1) α-Ni α-Ni	3,6049 3,6376 3,6531	— — —	— — —
4	19,2	6) Следы α-Ni, 7) ε'' (ромбическ)	3,5540 4,451	— 1,251	— 2,618
5	21,03	8) Следы Ni_3Sn (ВТ) (тип Fe_3Al) ε'' 6) Следы Ni_3Sn (ВТ) 9) Отжиг 730° 10 мин: Ni_3Sn (НТ) (DO_{19})	5,57 4,475 5,87 5,298 ± 0,001	— 4,270 — —	— 2,668 — 4,245 ± 0,002
6	21,8	α-Ni ε'' 6) Следы Ni_3Sn (ВТ) Следы Ni_3Sn (НТ) 9) Отжиг 730° 10 мин: Ni_3Sn (НТ)	3,571 4,19 5,87 — 5,310 ± 0,001	— 4,273 — — —	— 2,675 — — 4,252 ± 0,002
7	29,8	10) ε' (тип NiAs, $B8_1$) Ni_3Sn (ВТ)	4,176 5,87	— —	5,23 —
8	33,1	ε' 11) Следы Ni_3Sn (ВТ)	4,132 —	— —	5,23 —
9 10 11	39,8 45,7 54,8	ε' ε' ε'	4,108 4,0825 4,070	— — —	5,102 [illegible] 5,135
12	[illegible]	12) Следы δ ε' + δ	— —	— —	— —

KEY:
1. Number of alloy
2. Atomic %
3. Phase composition
4. Lattice periods, Å
5. (type A_1)
6. Traces of
7. (rhombic)
8. Traces of Ni_3Sn (HT)(Fe_3Al type)
9. Annealed at 730° for 10 min
10. ε' (type NiAs, $D8_2$)
11. Traces of Ni_3Sn (HT)
12. Traces of δ

[BT=HT (high temperature); HT=LT (low temperature)]

The range of α-solid solution is expanded to 12% Sn in [6] by hardening from the molten state. The difference between our data and the

SLIPCHENKO, L.S.

BIBLIOGRAPHIC DATA SHEET — JPRS 56681

PHASE COMPOSITION OF Ni-Sn ALLOYS DURING THE LIQUID STATE

A. F. Polyarnyy, L. S. Slipchenko

Joint Publications Research Service
1000 North Glebe Road
Arlington, Virginia 22201

Izvestiya Vuz. Tsvetnaya Metallurgiya, No. 3, 1972

The report contains an analysis of the structure of rapidly crystallizing alloys basically in the range of compositions corresponding to the two-phase states in equilibrium.

USSR
Materials
Metallurgy and metallography
Ni-Sn alloys

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UDC 628.543:546.214

USSR

KUL'SKIY, L. A., PLYSYUK, A. A., and SLIPCHENKO, V. A., Institute of Colloidal Chemistry and Chemistry of Water, Academy of Sciences Ukrainian SSR

"Use of Ozone for the Final Purification and Decontamination of Biochemically Pure Waste Water"

Kiev, Khimicheskaya Promyshlennost' Ukrainy, No 2, 70, pp 58-61

Abstract: This study concerns ozonization as a multi-purpose and economical method for the final purification of biochemically pure waste water. Ozone, a strong oxidizer, not only decontaminates water but considerably improves its physicochemical and sanitary-hygienic characteristics. Research on the use of ozone for oxidizing the organic matter of industrial sewage at organic synthesis and processing plants has shown ozone to be effective in removing phenols, thiocyanates, and cyanides, petrochemicals and products of methane thermooxidative pyrolysis, as well as polynuclear aromatic compounds (possessing carcinogenic properties), nitrocompounds, etc. Ozone, unlike chlorine, does not produce harmful oxidation products of organic matter, and ozonization does not require temperature and

USSR

KUL'SKIY, L. A., et al, Khimicheskaya Promyshlennost' Ukrainy, No 2, 70, pp 58-61

pH regulation. Experiments conducted on a small laboratory device with an oxidation column demonstrated the high effectiveness of final purification with ozone. At dose rates of 20--25 mg/l ozone is sufficiently effective in decolorizing, deodorizing and decontamination of water. A table in the original article gives comparative data on the effectiveness of purifying water with ozone as a function of its concentration in the ozone-oxygen mixture. Ozone has also gained wide acceptance in decontamination of drinking water. The bactericide activity of ozone is shown in another table in the original article.

2/2

Water Treatment

USSR

UDC 628.543:546.214

KUL'SKIY, L. A., PLYSYUK, A. A., and SLIPCHENKO, V. A., Institute of Colloidal Chemistry and Chemistry of Water, Academy of Sciences Ukrainian SSR

"Use of Ozone for the Final Purification and Decontamination of Biochemically Pure Waste Water"

Kiev, Khimicheskaya Promyshlennost' Ukrainy, No 2, 70, pp 58-61

Abstract: This study concerns ozonization as a multi-purpose and economical method for the final purification of biochemically pure waste water. Ozone, a strong oxidizer, not only decontaminates water but considerably improves its physicochemical and sanitary-hygienic characteristics. Research on the use of ozone for oxidizing the organic matter of industrial sewage at organic synthesis and processing plants has shown ozone to be effective in removing phenols, thiocyanates, and cyanides, petrochemicals and products of methane thermooxidative pyrolysis, as well as polynuclear aromatic compounds (possessing carcinogenic properties), nitrocompounds, etc. Ozone, unlike chlorine, does not produce harmful oxidation products of organic matter, and ozonization does not require temperature and

1/2

USSR

KUL'SKIY, L. A., et al, Khimicheskaya Promyshlennost' Ukrainy, No 2, 70, pp 58-61

pH regulation. Experiments conducted on a small laboratory device with an oxidation column demonstrated the high effectiveness of final purification with ozone. At dose rates of 20--25 mg/l ozone is sufficiently effective in decolorizing, deodorizing and decontamination of water. A table in the original article gives comparative data on the effectiveness of purifying water with ozone as a function of its concentration in the ozone-oxygen mixture. Ozone has also gained wide acceptance in decontamination of drinking water. The bactericide activity of ozone is shown in another table in the original article.

2/2

USSR

UDC 681.3.001:518.5

SLIPCHENKO, V. G., SHUMAKOVA, L. A.

"An Algorithm for Calculating Determinant with Complex Elements"

Vestn. Kiyevsk. politekhn. in-ta. Ser. avtomatiki i elektropriborostr. (News of Kiev Polytechnical Institute. Automation and Electronic Instrument Building Series), 1970, No 7, pp 105-107 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 2, Feb 71, Abstract No 2B37)

Translation: An algorithm is described for calculating a determinant with complex elements by excluding the elements in successive rows. It is convenient to use the characteristic features of calculating the determinant when analyzing electronic circuit functions. The bibliography has 2 entries.

1/1

USSR

UDC 621.372.0.61

SIGORSKIY, V. P., PETRENKO, A. I., SLIPCHENKO, V. G.

"Algorithm and Program for Setting up Equations of State for a Circuit With Optimum Subdivision of Mutually Defined Branches of the Circuit Graph"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 52-68

Abstract: The authors consider a universal algorithm for setting up equations of state for an electronic circuit using a mixed coordinate basis. The algorithm is suitable for analyzing linear and nonlinear continuous and discrete circuits with dependent sources. The program enables derivation of an equation of state in the form of a system of first-order differential equations. One table, four illustrations, bibliography of four titles.

1/1

USSR

UDC 621.372.061

PETRENKO, A. I., SLIPCHENKO, V. G.

"Program for Compiling the Equations of State of Electronic Circuits"

Avtomatiz. proyektir. v elektronike. Resp. mezhved. nauchno-tekhn. sb. (Automation of Design in Electronics. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 1, pp 116-123 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A108)

Translation: A program for compilationof the equations of state of electronic circuits executed on a digital computer is described. The application of the method of variable states using a mixed coordinate base is explained by its universality and suitability for analysis of linear and nonlinear analog and digital circuits and systems both in the field of electronics and in the field of automatic control. There are 4 illustrations, 1 table and an 11-entry bibliography.

1/1

USSR

SLISENKO, A. O

"Several Questions in Approximating Maximal Continuity Regulators"

Trudy Ordena Lenina Matematicheskogo Instituta imeni V. A. Steklov: Problemy Konstruktivnogo Napravleniya v Matematike; 5, 1970; pp 73-8

Abstract: The author cites a reference in which a positive answer is given to solving the question concerning the possibility of effectively constructing maximal generalized continuity regulators of uniformly continuous functions; the operator described therein gives the best result in the class of operators operating according to uniform approximations to the original function. It is this operator which the present article sutdies, since it is found that the results are not considered to be satisfactory from the viewpoint of computing the maximal continuity regulators. This is due mainly to the fact that a generalized maximal continuity regulator is obtained, whereas the maximal ungeneralized one is desired, and also because the computation process is quite complicated even if the continuity regulator obtained is not a generalized one. Thus the article seeks to answer two questions: (1) How can the maximal generalized continuity regulator be used to find approximations to the maximal regulator, and; (2) How effective are the approximations allowed by the maximal continuity regulator? The author gives two theorems and the proofs thereof. The article contains three bibliographic citations.
1/1

USSR

UDC 531.383

SLIV, E. I., Leningrad Institute of Precision Mechanics and Optics

"The Possibility of Designing an Invariant Gyrocompass with Pendulum Correction"

Leningrad, IVUZ, Priborostroyeniye, No 11, 1970, pp 79-81

Abstract: The article deals with a gyrocompass with pendulum correction. It is shown that the equations of its motion coincide completely with the equations of motion of a pendulum compass, the invariance of which has been exhaustively demonstrated in the literature. 3 figures, 1 table, 1 bibliographic entry.

1/1

Gyroscopic

USSR

UDC: 62-56

SLIV, E. I., BORISOV, Yu. A., ZOST, Z. G., IL'ICHEVA, A. D., Leningrad Institute of Precision Mechanics and Optics

"Errors of the Extremum Method of Finding the Meridian in Initial Orientation of Inertial Systems"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 8, 1973, pp 68-71

Abstract: The authors examine the errors involved in determining the position of a gyroplatform in the azimuth from the extremum of the azimuthal characteristic. It is shown that the expected accuracy of determining the gyroplatform position in the first approximation is higher than with gyrocompass determination since the procedural errors of the method are low and in principle can be reduced, accuracy is independent of the drift of the leveling gyros, and at the same time the constructional errors are the same as in the gyrocompass method.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--GENERAL PROPERTIES OF THREE AND MORE PARTICLE STATES WITH LARGE SPIN -U-
AUTHOR-(03)-KHARITONOV, YU.I., PEKER, L.K., SLIV, L.A.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. B 1970, 31(5), 277-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR ENERGY LEVEL, SPIN SYSTEM, MULTIPLET SPLITTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1052 STEP NO--NE/0000/70/031/005/0277/0279

CIRC ACCESSION NO--AP0124710
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 010

CIRC ACCESSION NO--AP0124710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONFIGURATIONS OF THE (J PRIME3) TYPE ARE SPLIT BY RESIDUAL FORCES FORMING MULTIPLETS OF LEVELS WITH SPINS J RANGING FROM J SUBMIN. EQUALS THREE HALVES TO J SUBMAX. EQUALS 3J-3. THE DOUBLET SPLITTING OF THE (JNSJ, J SUBI EQUALS ONE HALF) CONFIGURATION DEPENDS ON THE STRENGTH OF SINGLET FORCES AND IS PROPORTIONAL TO (2J PLUS 1). FACILITY: A. F. IOFFE PHYS. TECH. INST., LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 013

TITLE--REGION OF THE FORMATION OF INTERNAL CONVERSION COEFFICIENTS IN THE UPPER ATOMIC SHELLS -U-

AUTHOR-(03)-DAND, I.M., SLIV, L.A., TRZHASKOVSKAYA, M.B.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(6), 306-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CONVERSION ELECTRON SPECTRUM, ELECTRON SHELL STRUCTURE, ELECTRIC FIELD, NUCLEAR SPIN, PARITY PRINCIPLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0995 STEP NO--UR/0386/70/011/006/0306/0308

CIRC ACCESSION NO--AP0115016

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 013
CIRC ACCESSION NO--AP0115016
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM A STUDY OF THE RADIAL INTEGRALS FOR THE FORMULAS USED TO CALC. THE INTERNAL CONVERSION COEFFS., IT WAS CONCLUDED THAT THE VALUES OF THE COEFFS. ON ALL AT. SHELLS ARE FORMED WITHIN THE INNER LAYERS OF THE ATOM AND THEREFORE THEIR VALUE IS NOT DEPENDENT ON ANY CHANGES IN THE ELEC. FIELD ON THE PERIPHERY OF THE ATOM. THE DETN. OF THE COEFFS. ON THE HIGH AT. SHELLS, AS WELL AS ON THE INTERNAL SHELLS, CAN BE USED TO FIND THE SPIN AND PARITY OF THE NUCLEAR LEVELS. THE COEFFS. ON THE HIGH SHELLS SHOULD NOT CHANGE MUCH FOR CHANGES IN THE NO. OF ELECTRONS IN THE OTHER SHELLS BUT SHOULD CHANGE MARKEDLY FOR A CHANGE IN THE TOTAL NO. OF ELECTRONS ON THE SHELL FROM WHICH THE CONVERSION TAKES PLACE.
FACILITY:
FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME GENERAL PROPERTIES OF THREE AND MORE PARTICLE STATES WITH LARGE SPIN -U-

AUTHOR-(03)-KHARITONOV, YU.I., PEKER, L.K., SLIV, L.A.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS (NETHERLANDS), VOL. 31B, NO. 5, P. 277-9 (2 MARCH 1970)

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PHYSICS, NUCLEAR SPIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--NE/0000/70/000/005/0277/0279

PROXY REEL/FRAME--1992/0658

CIRC ACCESSION NO--AP0111751

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0111751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES ARE CONSIDERED OF THE LEVELS ARISING FROM SPLITTING OF THE CONFIGURATION (J PRIME3) CAUSED BY RESIDUAL INTERACTIONS. THE DOUBLET SPLITTING OF THE (J PRIMEN SJ, J EQUALS ONE HALF) CONFIGURATION IS SHOWN TO DEPEND ON THE STRENGTH OF SINGLET FORCES AND TO BE PROPORTIONAL TO (2J PLUS 1). FACILITY: ACAD. SCI. USSR. LENINGRAD.

UNCLASSIFIED

USSR

UDC 518:517.944/.947

BAUTIN, A. V., KONOVALOV, A. P., ISAYEV, Yu. V., and SLIVA, A. V.

"Problems in Constructing Algorithms for Solving Equations in Mathematical Physics as Applied to Electrical Engineering Problems"

Moscow, Primenenive vychisl. tekhn. v elektrotekhn. prom-sti -- Sbornik (Application of Computers in the Electrotechnical Industry -- Collection of Works), 1971, pp 347-353 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B957, by I. Shelikhova)

Translation: Problems associated with constructing algorithms for solving nonlinear equations of the elliptical and parabolic types as applied to electrotechnical problems are examined. An algorithm is presented for solving the first boundary value problem that arises when calculating the nonstationary mode of a thermoelectric transformer using a locally one-dimensional problem in conjunction with the method of successive approximations. Sufficient conditions for the convergence of the iterative process are derived.

1/1

USSR UDC: 539.142.2

SLIV, L. A., Leningrad Institute of Nuclear Physics, Academy of Sciences of the USSR

"New Data From Research on Near-Magic Nuclei"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 26, No 10, Oct 72, pp 2026-2035

Abstract: The author discusses the implications of recent findings in nuclear research using the latest techniques, especially nuclear reactions like (α, xn), (α, t), (dp), and so forth, as applied to states in the Pb and Zr region. It is shown that collective excitations of Pb and Zr nuclei are complex formations whose properties do not change with the addition (or removal) of as many as 6-8 particles. The nature of splitting of mixed configurations of the $\{h_{9/2}, 3^-; I\}$ type is discussed. The magnitude of the splitting, and consequently the parameter of interaction, was found to be small in all cases. The results of research on splitting of configurations of two, three, or more particles of overfilled shells are discussed. It is shown that the form of multiplet splitting can give valuable information

USSR

SLIV, L. A., Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 26, No 10, Oct 72, pp 2026-2035

on the forces acting between particles in the nucleus. The author thanks V. I. Isakov, T. A. Kozhamkulov, L. K. Peker, and Yu. I. Kharitonov for assistance in selecting the material for the paper.

2/2

USSR

UDC[537.226+537.311.33]:[537+535]

TURYANITSA, I. D., KOPERLES, B. M., SLIVKA, V. YU., and CHEPUR, D. V.

"Synthesis and Certain Electrophysical Properties of Indium Chalcoiodides"

V sb. Poluprovodn. elektronika (Semiconductor Electronics -- Collection of Works), Uzhgorod, 1971, pp 193-197 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE628 by YE. A.)

Translation: The compounds InSI, InSeI, and InTeI were synthesized by direct interaction of the initial components according to the scheme: $2A^{III} + 2B^{VI} + C_2^{VII} \rightleftarrows 2A^{III}B^{VI}C^{VII}$. The method of producing crystals is described and the parameters of their lattices are presented. The optical transmission and photoconductivity spectra of the crystals obtained were investigated. All compounds have an energy gap of more than 2 ev and possess photosensitivity in the region of the long-wave fundamental absorption edge. At 20° C the specific electrical conductivity of the crystals is 10^{10}+10^{11} ohm·cm. The temperature dependence of electrical conductivity, permittivity, and energy gap reveal no anomalies in the temperature range from -150 to +50°C, which obviously indicates that there are no phase transitions in the given temperature region in the compounds obtained.

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USSR UDC [537.226+537.311.33]:[537+535]

BERCHA, D. M., ZAYACHKOVSKIY, M. P., SLIVKA, V. YU, LOVGA, I. V., TURYANITSA, I. D., AND CHEPUR, D. V.

"Effect of Piezoresistance in BiSeI Crystals"

V sb. Poluprovodn. elektronika (Semiconductor Electronics -- Collection of Works), Uzhgorod, 1971, pp 53-58 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE651 by G. G. RUDOVOL)

Translation: An investigation was made of the effect of piezoresistance and electrical conductivity in acicular BiSeI single crystals, as well as their temperature dependence in the 270-115° K temperature range. It was established that the piezoresistance coefficient is complexly (peakwise) temperature-dependent. It is suggested that the semiconductor has several donor levels, which are depleted in turn. This results in several peaks, dependent on the number of impurity levels. However, the peak found in the 130-140° K temperature region is due to a phase transition of the second kind. In the 230° K region the piezoresistance does not involve a phase transition but is due to a change in the activation energy of impurity levels. Such an assumption is confirmed by the fact that in experimental studies a shift in the minimum is observed from specimen to specimen, while the minimum remains constant at T=133° K.

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USSR

UDC [537.226+537.311.33]:[537+535]

MUCHICHKA, I. I., SAVCHENKO, N. D., LOVYAGIN, N. I., TSVANITSA, I. D., CHEPUR, D. V., SLIVKA, V. YU.

"Effect of Temperature on Certain Electrophysical and Optical Properties of $AsS_xSe_{1-x}I$ and $As_xSb_{1-x}SI$ Samples"

V sb. Nekotor. vopr. khimii i fiz. poluprovodnikov slozhn. sostava (Certain Problems in the Chemistry and Physics of Semiconductors of Complex Compositions -- Collection of Works), Uzhgorod, 1970, pp 228-233 (from RZh Fizika, No 12, Dec 71, Abstract No 12Yel399)

Translation: Compounds of $AsS_xSe_{1-x}I$ were obtained in the vitreous state by a direct synthesis method, and single crystals of $As_xSb_{1-x}SI$ were obtained from the gas phase. The current-voltage characteristics were studied at various temperatures in the range 100-303°K; the photocurrent was determined as a function of wavelength, illumination, and temperature, and the absorption spectra of the samples were measured at different temperatures. Conclusions were drawn on the basis of the data concerning conductivity mechanisms, recombination mechanisms, defect levels, and the temperature coefficient of the width of the forbidden zone. A. Ya. O.

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USSR

UDC 621.039.524.034.3:621.039.526

KRASIN, A. K., NESTERENKO, V. B., KOLYKHAN, L. I., BUBNOV, V. P., IL'IN, A. YA., SLIZOV, V. P., SHURFROV, YU. V.

"Experimental Power Plant with a Gas Cooled Fast-Neutron Reactor and a Dissociating Heat Transfer Agent (BRG-20)"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 42-47 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U107)

Translation: The possibility of creating an experimental industrial atomic power plant with a gas-cooled fast neutron reactor and a dissociating heat exchange agent is investigated. The parameters of the device and the required volume of experimental research are discussed. There are two illustrations and a four-entry bibliography.

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USSR

UDC 621.039.526

NAUMOV, V. A., SLIZOV, V. P.

"Some Characteristic Features of the Physics of Fast Neutron Reactors Cooled by Dissociating Gases"

Dissotsiiruyushch. gazy kak teplonositeli rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 27-35 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U109)

Translation: A calculation procedure is used to compare the basic physical characteristics of plutonium reactors with different heat exchange agents in the range of spherical core sizes of 1,000 to 5,000 liters. It is demonstrated that fast reactors with dissociating gases (N_2O_4 and Al_2Cl_6) by comparison with a sodium reactor have better operating characteristics. The basic physical characteristics of 1,000 megawatt fast reactors of cylindrical configuration with sodium and gas heat transfer agents have been obtained. The reactors with fuel compositions of $PuO_2 + UO_2$ and UO_2 are investigated. It is demonstrated that the used method of small-group diffusion calculation permits absolute values of the physical characteristics of the fast reactor to be

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USSR

NAUMOV, V. A., et al., Dissotsiiruyushch. gazy kak teplonositeli rab. tela energ. ustanovok, Minsk, Nauka i Tekhn. Press, 1970, pp 27-35

obtained with satisfactory accuracy. There are 6 tables, 3 illustrations and a 12-entry bibliography.

2/2

USSR

UDC 624.042.3

SLOBIN, B. S. (Volgograd)

"The Amplitude Analysis of Random Processes With Cyclical Stresses"

Moscow, Mashinovedeniye, No 1, 1971, pp 59-64

Abstract: The principle of amplitude analysis (breakdown into elementary cycles) is formulated for the realizations of a wide-band random process in connection with the problem of the mechanical fatigue of structures acted upon by random forces. An approximate solution is obtained for the amplitude distribution of the elementary cycles of a normal steady-state wide-band process, the solution being valid for large amplitude values. 2 figures, 2 tables, 5 bibliographic entries.

1/1

Acc. Nr.: AP0046762

Ref. Code: UR0125

USSR

UDC 621.791.75

NIKHINSON, YU. I., SUMYATIN, V. I., GOLEMBO, S. B., SLOBIN, B. Z., GRUDO, A. I., VAYSBURD, I. SH.

"Welding the Frame of the Self-Propelled Chassis T-16M"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 44-46 (from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: The results of selecting the technological process for welding steel 45L with an increased carbon content are discussed. It is recommended that the welding be performed in two layers without preliminary heating. There are 3 illustrations.

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Reel/Frame
19790066

USSR

UDC 669.71.053.4(088.8)

BATYUK, Yu. N., SHURYGIN, G. V., and SLOBIN, P. I.

"Device for Filtrate Sampling From Pipe-Line"

USSR Authors' Certificate No 298856, Cl. G 01 n 1/10, filed 7 Apr 69, published 18 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G119P by G. Svodtseva)

Translation of Abstract: A device for filtrate sampling from a pipe-line can be used in the production of Al_2O_3 and includes a cylindrical frame with flanges and a connecting piece with open pores. In order to increase operating efficiency the connecting piece is installed concentrically inside the frame and supplied with a conical tip.

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USSR

UDC 621.382.2:(546.181):546.681

GLAZKOV, O., SLOBODCHIKOV, S., AGAYEV, Ya., Physicotechnical Institute, Academy of Sciences of the Turkmen SSR

"Electrical Properties of PN Junctions in n-Gallium Phosphide"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No 6, 1971, pp 3-8

Abstract: The paper presents some results of an investigation of the electrical properties of pn junctions based on gallium phosphide grown by the gas-transport reaction method. n-Type GaP was used with carrier concentrations of ~10^{15} and 10^{17}/cc at T = 296°K. The acceptor dopant was zinc and ohmic contacts were made by using indium on the n-side and In + (1-4)% Zn on the p-side. The current-voltage characteristics of these diodes were studied at 78-300°K. Mechanisms of current transmission are analyzed, and it is shown that a complete description of the forward branch necessitates accounting for the diffusion and generation-recombination currents. The coefficient β increases at low temperatures due to the tunnel effect. Excellent agreement is observed between the calculated and experimentally determined contact potential difference.

1/1

USSR

MIKHAYLOVA, M. P., NASLEDOV, D. N., SLOBODCHIKOV, S. V., KHAMROKULOV, M., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR

"Heating of Electrons by Light in n-InAs"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 2, Feb 73, pp 390-394

Abstract: The photomagnetic effect and photoconductivity are investigated in degenerate specimens of n-InAs with free carrier concentration of $2 \cdot 10^{16}$-$8 \cdot 10^{17}$ cm^{-3} in the temperature range of 5-77°K. Evaluations are made of the characteristic times of relaxation of electrons with respect to energy, and the role of the principal mechanisms of energy loss by the heated carriers is analyzed in different temperature intervals. It is shown that the behavior of the photomagnetic effect and photoconductivity in degenerate n-InAs at low temperatures can be satisfactorily explained by the theory of photoelectric effects for the case of electron heating by light under conditions of strong electron-electron interaction. In conclusion, the authors thank I. N. Yassiyevich for her constructive criticism.

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1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTERBAND RADIATIVE AND IMPACT RECOMBINATION IN INDIUM PHOSPHIDE -U-

AUTHOR-(03)-KOVALEVSKAYA, G.G., NASLEDOV, D.N., SLOBODCHIKOV, S.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 780-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--REACTION MECHANISM, RADIATION EFFECT, THERMAL EFFECT, INDIUM COMPOUND, PHOSPHIDE, RADIATIVE RECOMBINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1448 STEP NO--UR/0449/70/004/004/0780/0783

CIRC ACCESSION NO--AP0135119

UNCLASSIFIED

2/2 045 UNCLASSIFIED

CIRC ACCESSION NO--AP0135119 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIFETIME OF RADIATIVE AND IMPACT RECOMBINATION IN PURE OR DOPED INP WAS EVALUATED THEORETICALLY. THE RESP. LIFETIMES FOR PURE AND DOPED INP, TAU SUBN AND TAU SUBP FOR THE CASE OF RADIATIVE INTERBAND RECOMBINATION AT LOW EXCITATION LEVELS WERE PLOTTED VS. 1-TAU. THE MAX. LIFETIME OF PURE INP DISPLAYED AN ABRUPT, ALMOST EXPONENTIAL DECREASE AT ELEVATED TEMPS. DOPED INP DISPLAYED THE REVERSE BEHAVIOR. LIFETIME WAS SLIGHTLY AFFECTED BY TEMP., AND A NEGLIGIBLE DECREASE WAS CHECKED AT LOW TEMP., ATTRIBUTED TO CARRIER CONCN. ALTERATIONS. AT ELEVATED TEMPS., WHEN THE INTRINSIC CARRIER CONCN. TENDS TO N SUBD VALUES, (10 PRIME10-10 PRIME13 PER CM PRIME3), LIFETIMES OF PURE AND DOPED INP BECOME EQUAL. CURVES WERE PLOTTED ALSO FOR THE TEMP. DEPENDENCE OF IMPACT RECOMBINATION LIFETIME OF PURE AND DOPED INP. THE TEMP. DEPENDENCE WAS MORE ABRUPT THAN EXPONENTIAL, DUE TO THE KNOWN EFFECT OF THE BROADENING OF THE FORBIDDEN GAP. DOPING DECREASES LIFETIME SHARPLY. THE THEORETICALLY EVALUATED LIFETIME DATA IN BOTH CASES WERE COMPARED WITH PREVIOUSLY REPORTED EXPTL. FIGURES (KOVALEVSKAYA, 1968), IN AN EFFORT TO ANALYZE THE INTERBAND RECOMBINATION MECHANISM OF INP. IN THE ABSENCE OF DEFECTS, IN PURE INP CRYSTALS RADIATIVE RECOMBINATION FOLLOWS PREDOMINANTLY A RECOMBINATION AND ATTACHMENT MECHANISM AT ROOM TEMP. AND SLIGHTLY ABOVE.

VACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.181.8:669.14.001.4(47 + 57)

STROKOPYTOV, V. I., SLOBOCHIKOVA, N. L.

"Investigation of the Metal of Steam Superheater Pipes Made of Kh18N9T and Kh18N12T Steels"

Chelyabinsk, V sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk.ugle" (Collection of Works-Assimilation of 300 Mw Power Units Burning the Ekibastuz Region Coal), 1972, pp 50-56 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6P115 by S. G. Dupleva)

Abstract: In reference to the often pipe failures on PK-39 and PK-39-1 boilers of 300 Mw power units on Troitskoy and Ermakovskoy Hydroelectric Power Stations, tests were carried out on metal of the screen type steam superheater pipes made of Kh18N9T and Kh18N12T austenite steels. Statistical processing showed a large spread in

1/2

USSR

Chelyabinsk, V. sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. egle", 1972, pp 50-56 (From Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6P115 by S. G. Dupleva)

pipe metal chemical composition and mechanical properties. The austenite steels are disposed to surface hardening which leads to the loss in heat resistant properties and failure, under high temperature and pressure conditions. Inspection of the pipe external surface condition showed a great number of defects near weld joints. The metallographic studies showed a fine grained (lower than standard) austenite structure. For the purpose of increasing the service reliability it is necessary to subject the pipes after bending to repeated austenization, rigorously fulfil the heat treatement requirements and improve the quality of contact welding. 3 figures, 1 table, 2 references.

2/2

USSR

SLOBODCHIKOVA, R. I., LAPINA, Z. S.

"Random Balance at Many Levels"

Voprosy Kibernetiki. Nekotoryye Voprosy Planirovaniya Eksperimenta [Problems of Cybernetics. Certain Problems of Experimental Planning], Moscow, 1972, pp 40-55 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V292, by the authors).

Translation: One algorithm for separation of significant factors (qualitative and quantitative) in multilevel random balance plans is suggested.

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USSR

UDC 621.762.2:669.296

KOZLOV, A. N., DUBININ, G. N., ALEKSANDROVA, I. F., KRAVETSKIY, G. A., RUZINOV, L. P., SLOBODCHIKOVA, R. I.

"Optimization of the Processes of Obtaining Spherical Zirconium Powder by Plasma Atomization of Wire using Mathematical Statistics"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 228, pp 130-138 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G401)

Translation: The optimal conditions of plasma atomization of Zr-wire to obtain spherical powder with a particle size of 400-800 microns sufficiently pure with respect to O_2 and N_2 (with a granule microhardness $\leq$300-500 kg/mm^2) are defined. When processing the experimental data, the ranging method was used. A vacuum plasma atomization device was designed and manufactured for obtaining spherical powders of chemically active refractory metals. The optimal conditions of the Zr atomization process are as follows: current 500 $\pm$ 60 amps, argon flow rate 3.2 m^3/hour, rarefaction in the chamber 400 mm Hg, spacing between the wire and the nozzle section 0.5 mm. The yield of the Zr powder fraction 400-800 microns in size is [illegible]. 3 illustrations, 3 tables, and a 13-entry bibliography.

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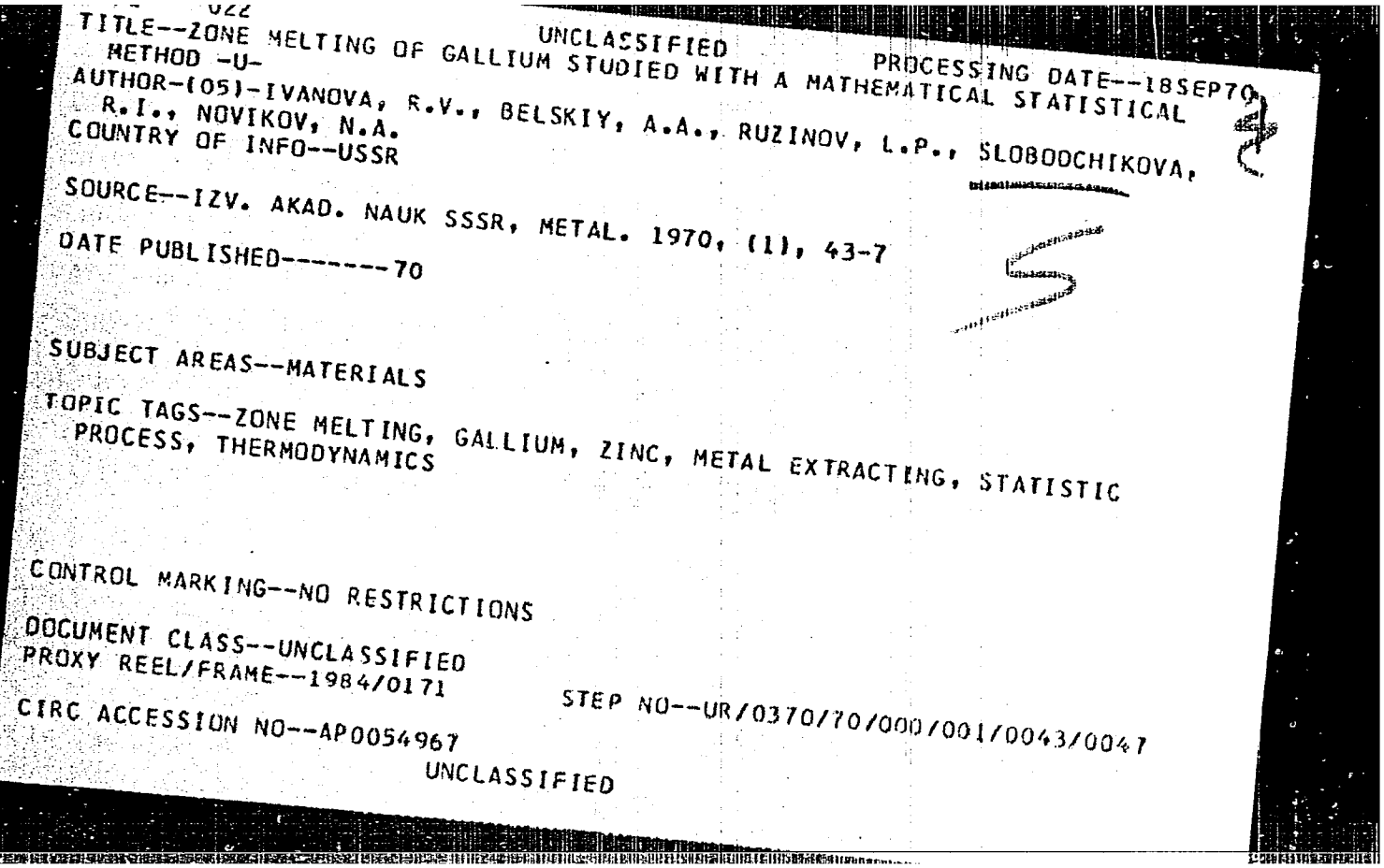


022 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ZONE MELTING OF GALLIUM STUDIED WITH A MATHEMATICAL STATISTICAL METHOD -U-
AUTHOR-(05)-IVANOVA, R.V., BELSKIY, A.A., RUZINOV, L.P., SLOBODCHIKOVA, R.I., NOVIKOV, N.A.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 43-7

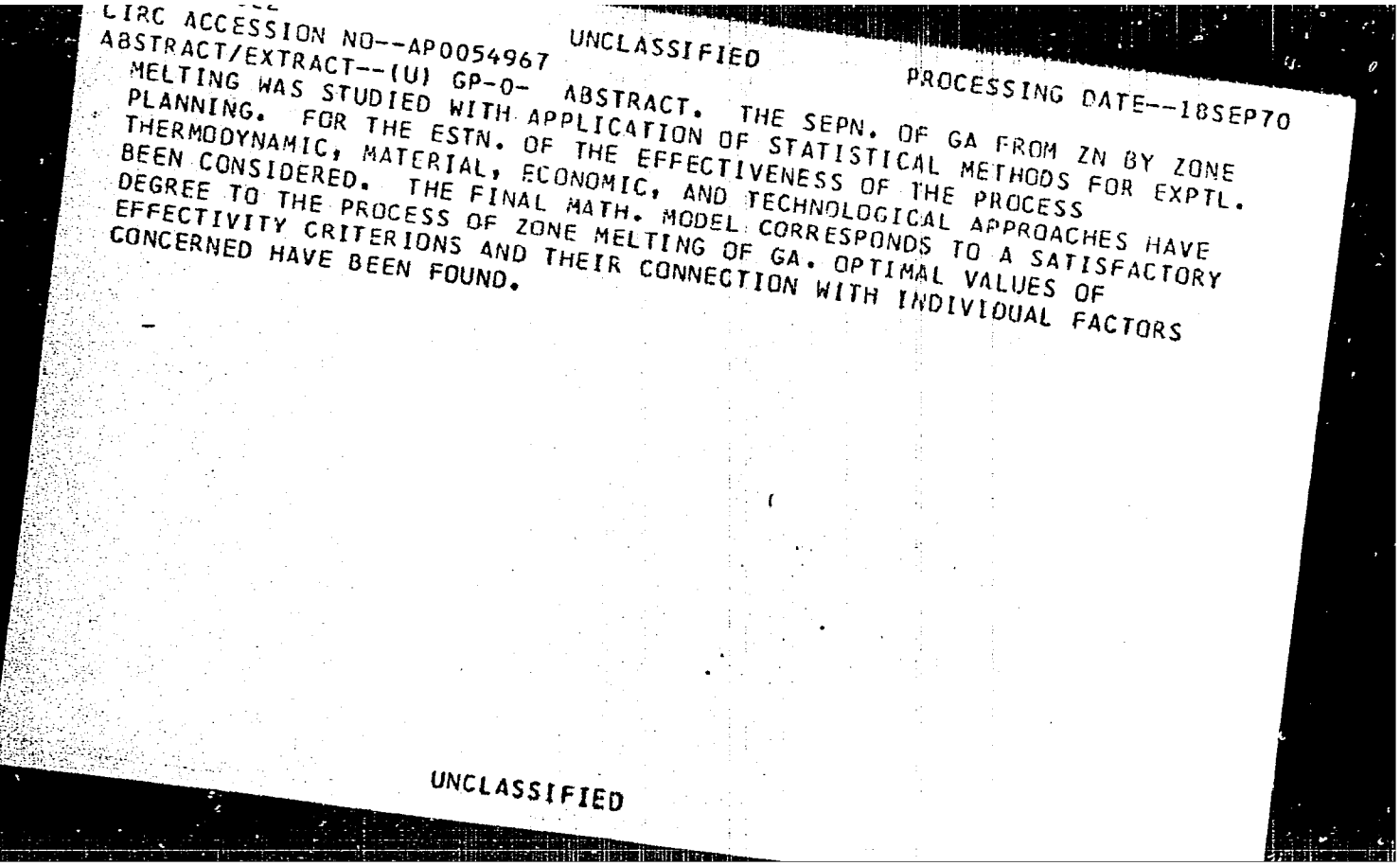
DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ZONE MELTING, GALLIUM, ZINC, METAL EXTRACTING, STATISTIC PROCESS, THERMODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0171 STEP NO--UR/0370/70/000/001/0043/0047
CIRC ACCESSION NO--AP0054967
UNCLASSIFIED



CIRC ACCESSION NO--AP0054967 UNCLASSIFIED PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. OF GA FROM ZN BY ZONE MELTING WAS STUDIED WITH APPLICATION OF STATISTICAL METHODS FOR EXPTL. PLANNING. FOR THE ESTN. OF THE EFFECTIVENESS OF THE PROCESS THERMODYNAMIC, MATERIAL, ECONOMIC, AND TECHNOLOGICAL APPROACHES HAVE BEEN CONSIDERED. THE FINAL MATH. MODEL CORRESPONDS TO A SATISFACTORY DEGREE TO THE PROCESS OF ZONE MELTING OF GA. OPTIMAL VALUES OF EFFECTIVITY CRITERIONS AND THEIR CONNECTION WITH INDIVIDUAL FACTORS CONCERNED HAVE BEEN FOUND.

UNCLASSIFIED

USSR

UDC 519.214.519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P.

"Limit Theorems for Random Walks"

Predel'nyye Teoremy Dlya Sluchaynykh Bluzhdaniy [English Version Above], Kiev, 1970, 303 pages (Translated from Referativnyy Zhurnal Kibernetika, No 4, April, 1971, Abstract No 4 V25K by B. Rogozin).

Translation: In chapter 1, "Random Walks," a classification is presented of random walks in an m-dimensional Euclidean space with respect to the properties of the distribution carrier of an individual step of the walk: degenerate and nondegenerate, continuous and discrete, integer lattice and nonlattice, aperiodic. The criteria of returning and nonreturning random walks are studied. In a sampling space corresponding to a random walk, the stable Markov functionals, homogeneous Markov sequences of functionals, right sequences of functionals are defined. In chapter 2, "Limit Theorems for Right Sequences of Functionals," the central limit theorem is presented in integral and local forms with refinements for random walks. Considerable space is given to a presentation of the problem of convergence of stepped processes corresponding to a random walk, to the Wiener process. These results are used to study the limit distribution of a right sequence of homogeneous functionals from a random walk, as well as

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USSR

UDC 519.214. 519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P., Predel'nyye Teoremy Dlya Sluchaynkh Bluzhdaniy, Kiev, 1970, 303 pages.

a certain class of sequences of near-homogeneous functionals. In chapter 3, "Functionals of a Wiener Process," a Dub characterization of a Wiener process in the class of Martingales is presented, and the properties of a strictly Markov-Wiener process are concluded. A stochastic Ito integral is constructed for a Wiener process which is used to construct a class of homogeneous, additive functionals of the Wiener process. Differential equations are presented for certain characteristics of such functionals. The problems of existence and uniqueness of a stochastic differential equation are studied, and a differential equation is concluded for the mathematical expectation of the function of the value of a Wiener process and the values of the solution of a stochastic equasion at moment in time t. In chapter 4, "Limit Theorems for Markov Functionals," problems of weak convergence of sequences of functionals $\{\eta_n, n\}_{n=1}^{\infty}$ are studied, where $\eta_{n,k}=g_n(\eta_{n,k-1}, S_{k-1}, \xi_k)$, $\eta_{n,0}= 0$, S_k is the position of a walk after the kth step, ξ_k is the value of the kth step, $g(x, y, z)$ is a measurable function of x, y, z, $-\infty<x<\infty$, y and z are from the phase space of the random walk. As results of the preceding results, limit theorems are presented for a Markov sequence of functionals of a random walk $\eta_{k+1}, \eta_k+G(\eta_k, S_{k-1}, \xi_k)$, where G satisfies the condition V (presented on page 160 in distorted form). Chapter 5, "Limit Theorems for Additive Functionals of Normalized Sums of Independent

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USSR

UDC 519.214. 519.217

SKOROKHOD, A. V., SLOBODENYUK, N. P., Predel'nyye Teoremy Dlya Sluchaynkh Bluzhdaniy, Kiev, 1970, 303 pages.

Random Quantities," contains an analysis of functionals of the form

$$\eta_n=\sum_{k=1}^{n-r} f_n\left(\frac{S_1}{\sqrt{n}},\ldots,\frac{S_{k+r}}{\sqrt{n}}\right), n=1,2,\ldots,$$

which is reduced to analysis of functionals of the form

$$\bar{\eta}_n=\sum_{k=1}^{n}\Phi_n\left(\frac{S_k}{\sqrt{n}}\right), \quad n=1,2,\ldots.$$

The limit distributions in this case will be distributions of a certain additive functional of a Wiener process. Strengthening of the conditions for the distribution of an individual jump allows expansion of the class of sequences $\{\eta_n\}_{n=1}^{\infty}$, and $\{\bar{\eta}_n\}_{n=1}^{\infty}$, which are analyzed in limit theorems. The primary content of chapter 6, "Limit Theorems for Additive Functionals of a Random Walk," is made up of results abstracted earlier [RZhMat, 1966, 3V42, 9V26).

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USSR

UDC: 8.74

GALUSHKIN, A. I., VASIL'KOVA, T. F., SLOBODENYUK, V. I., TYUKHOV, B. P.

"Analysis of the Dynamics of Systems for Recognition of Nonstationary Patterns"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 23, pp 210-227 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V584)

Translation: The article is devoted to analysis of the dynamics of closed-cycle and open-cycle adaptive systems for recognition of nonstationary patterns. The use of nonstationary pattern recognition systems enables consideration of modes of operation which are fundamentally new for recognition systems, including anticipation of a decision in a recognition system with finite memory. Authors' resumé.

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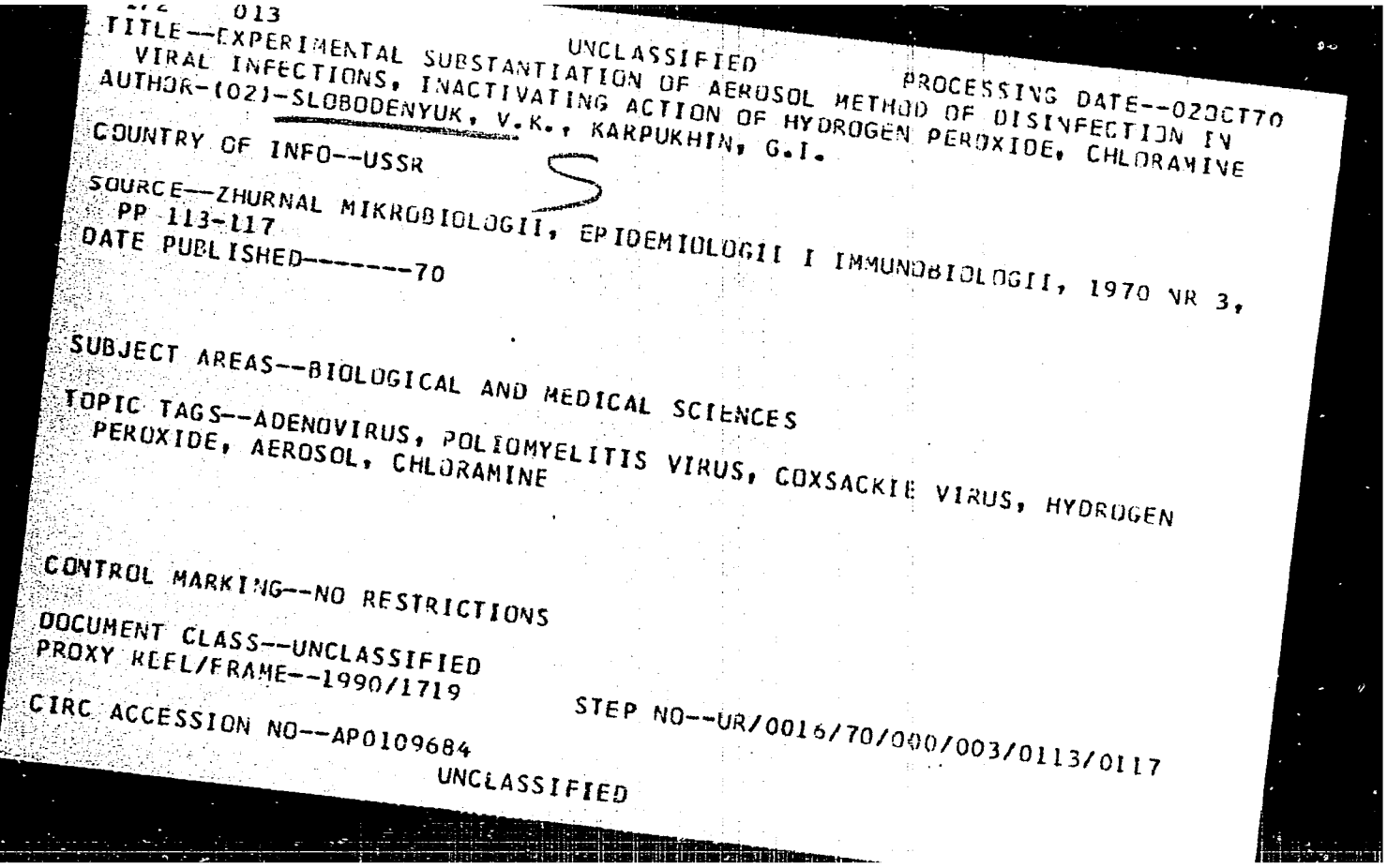

013 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EXPERIMENTAL SUBSTANTIATION OF AEROSOL METHOD OF DISINFECTION IN VIRAL INFECTIONS, INACTIVATING ACTION OF HYDROGEN PEROXIDE, CHLORAMINE
AUTHOR-(02)-SLOBODENYUK, V.K., KARPUKHIN, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970 NR 3, PP 113-117
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADENOVIRUS, POLIOMYELITIS VIRUS, COXSACKIE VIRUS, HYDROGEN PEROXIDE, AEROSOL, CHLORAMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1719 STEP NO--UR/0016/70/000/003/0113/0117
CIRC ACCESSION NO--AP0109684
UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0109684 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PRESENT THE RESULTS OF STUDYING THE INACTIVATING ACTION OF HYDROGEN PEROXIDE, CHLORAMINE AND HEXYLRESORCINE AEROSOLS ON ADENOVIRUS TYPE 3, POLIOMYELITIS VIRUS, TYPE III, COXSACKIE VIRUS, TYPE 1, IN THE AIR AND ON THE SURFACES. THE ACTION OF DISINFECTANTS WAS COMPARED BY THE AFFECT OF INACTIVATION, PROVIDING THE DEATH OF 99.9PERCENT OF THE VIRUSES WITHIN THE PERIOD OF 30 MINUTES. CONCENTRATION OF DISINFECTANTS PRODUCING EFFECTIVE INACTIVATION OF VIRUSES IN THE AIR WERE COMPARED WITH THE RECOMMENDED MAXIMAL ADMISSIBLE ONES. THE FOLLOWING PROVED TO BE THE MINIMAL DOSES WHICH INACTIVATED 99.9PERCENT OF THE POLIOVIRUS AND COXSACKIE VIRUS IN THE AIR AFTER EXPOSURE NOT EXCEEDING 30 MINUTES: OF HYDROGEN PEROXIDE, 20, CHLORAMINE, 10, AND HEXYLRESORCINE, 5 MG-M PRIME3, 99.9PERCENT OF ADENOVIRUSES WERE INACTIVATED BY 10, 5 AND 5 MG-M PRIME3 OF THE MENTIONED DISINFECTANTS. THE MINIMAL EFFECTIVE DOSES OF THE DISINFECTANTS WHICH INACTIVATED 99.9PERCENT OF THE VIRUSES ON THE SURFACE WERE GREATER THAN THOSE REQUIRED FOR INACTIVATION IN THE AIR; THEY VARIED IN RELATION TO THE TYPE OF THE VIRUS WITHIN THE FOLLOWING RANGE: FOR HYDROGEN PEROXIDE, FROM 40 TO 60, FOR CHLORAMINE, FROM 10 TO 15, AND FOR HEXYLRESORCINE, FROM 5 TO 10 MG-M PRIME3.

UNCLASSIFIED

USSR

UDC: 616.988-084.48

SLOBODENYUK, V.K. and KARPUKHIN, G.I., Sverdlovsk Institute of Viral Infections

"Experimental Substantiation of the Aerosol Method of Disinfection in Viral Infections. II. Inactivation of Different Viruses in the Air and on Environmental Surfaces Using Aerosols of Hydrogen Peroxide, Chloramine, and Hexylresorcin"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1970, pp 113-117

Abstract: The three disinfectants tested had a marked viricidal effect in comparatively low concentrations. The lowest doses that inactivated 99.9% of poliomyelitis type 3 and Coxsackie B type I viruses in the air after exposure of no more than 30 min were 20 mg/m^3 of hydrogen peroxide, 10 mg/m^3 of chloramine, and 5 mg/m^3 of hexylresorcin. Under the same experimental conditions, 99.9% of type 3 adenovirus was inactivated by 10 mg/m^3 of hydrogen peroxide, 5 mg/m^3 of chloramine, and 5 mg/m^3 of hexylresorcin. The lowest disinfectant doses inactivating 99.9% of viruses on environmental surfaces (wood, polyvinyl chloride, and glass) in the experimental chamber were higher than those required in the air. Depending on the type of virus, doses were from 40-60 mg/m^3 of hydrogen peroxide, 10-15 mg/m^3 of chloramine, and 5-10 mg/m^3 of hexylresorcin.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--OXIDATION OF THE OXICARBIDES, CARBONITRIDES AND OXINITRIDES OF TITANIUM -U-

AUTHOR-(02)-SHVEYKIN, G.P., SLOBODIN, B.V.

COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAIA METALLURGIIA, VOL. 10, FEB. 1970, P 63-68

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--OXIDATION, NITRIDE, TITANIUM CARBIDE, CHEMICAL REACTION MECHANISM, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0590 STEP NO--UR/0226/70/010/000/0063/0068

CIRC ACCESSION NO--AP0107187

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0107187

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE OXIDATION PROCESS OF TITANIUM CARBIDES, TITANIUM CARBONITRIDES, AND TITANIUM OXYNITRIDES, USING A DERIVATOGRAPHIC METHOD. A DISCUSSION IS GIVEN OF THE CHEMICAL PROCESSES AND OXIDATION MECHANISM. IT IS FOUND THAT THE STABILITY OF TITANIUM COMPOUNDS STUDIED DECREASES IN THE FOLLOWING SEQUENCE: CARBONITRIDES, OXYNITRIDES, AND OXYCARBIDES.

UNCLASSIFIED

USSR

SHVEYKIN, G. P., and SLOBODIN, B. V., Institute of Chemistry, Ural Affiliate of the Academy of Sciences USSR

"Oxidation of Titanium Oxycarbides, Carbonitrides, and Oxynitrides"

Kiev, Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 63-68

Abstract: The authors study the process of oxidation of titanium oxycarbides (TiC_xO_y), oxynitrides (TiN_xC_y) in air. The studies were done on a derivatograph with heating at a rate of 10°C/min to a temperature of 900-950°C. Gaseous reaction products were constantly removed from the reaction space during the course of the experiments. The complex process of oxidation of the initial materials may in general be divided into low-temperature and high-temperature stages. Metallic titanium has the highest temperature for initiation of oxidation (620-680°C) and the highest reaction rate on both stages. Titanium carbide has the lowest temperature for initiation of oxidation (400°C). The rate of oxidation for titanium carbide in the low-temperature stage is approximately an order of magnitude greater than for metallic titanium. As the carbon concentration is increased in titanium oxycarbides, the degree and rate of oxidation in the low-temperature stage increases. Titanium dioxide is the chief product of oxidation

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USSR

SHVEYKIN, G. P., et al, Poroshkovaya Metallurgiya, No 2 (86), Feb 70, pp 63-68

of titanium oxycarbides. Titanium carbonitrides are not as readily and completely oxidized to titanium dioxide as are titanium oxycarbides. Oxidation of titanium oxynitrides is initiated at a higher temperature than is the case for oxycarbides and carbonitrides. The following equations describe oxidation of these compounds:

$$TiC_xO_y + (1 + x - 0.5y)\ O_2 = TiO_2 + xCO_2, \qquad (1)$$

$$TiC_xN_y + (1 + x)\ O_2 = TiO_2 + xCO_2 + 0.5yN_2, \qquad (2)$$

$$TiN_xO_y + (1 - 0.5y)\ O_2 + TiO_2 + 0.5xN_2. \qquad (3)$$

The stability of the compounds decreases in the series carbonitrides - oxynitrides - oxycarbides.

2/2

USSR

FUDIM, Ye. V., GOLOD, A. L., CHAYKO, A. L., and SLOBODKIN, V. M.

"Pneumatic Computing Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 27, 1972, p 163, No (11) 351220

Translation: This device contains an input converter in the form of a pulsating resistance, the output of which is connected to the input of a gas flow integrator. For the sake of accuracy and structural simplicity, the device contains a block for removing the constant portion of the gas flow. The control channel of the gas is connected to the output of the device, the input channel is connected to the integrator input, and the output is connected to a constant pressure source.

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UDC 539.385

USSR

SLOBODNIKOV, V. YA.,

"Application of the Exponential Function of the Accumulation of Fatigue Damage In Forced Tests"

Sb. Nauch. Tr. Kiyev, In-t Grazhd Aviatsii (Collection of Works of the Kiev Institute of Civil Aviation Engineers), No 4, 1971, pp 45-48 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1341 by Yu. S. Borisov)

Translation: The article deals with the applicability of the linear hypothesis of damage cumulation to forced program tests for longevity under conditions of impact-cyclical loading. Sampels made of alloy D1T, 10 mm in diameter w with a concentrator in the form of a transverse opening 3 mm in diameter, were loaded by repeated impacts at R = 0. Foru series of tests were conducted with 8- and 12-stage programs with a different degree of forcing with respect to the value of the stresses. The transition from program to program is accomplished by a proportional increase of the stresses of the entire spectrum with retention of the normal law of distribution. The possibility of applying an exponential function of damage cumulation is shown.

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1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--INHIBITION OF PHOTOSYNTHESIS BY OXYGEN IN PLANTS CULTIVATED UNDER VARIOUS CONDITIONS OF NITROGEN SUPPLY -U-

AUTHOR-(03)-SLOBODSKAYA, G.A., GRISHINA, G.S., NICHIPOROVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 2, PP 244-252

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHOTOSYNTHESIS, NITROGEN, OXYGEN, CARBON DIOXIDE, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/1598 STEP NO--UR/0326/70/017/002/0244/0252

CIRC ACCESSION NO--AP0052794

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 012

CIRC ACCESSION NO--AP0052794

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIGHT CURVES OF PHOTOSYNTHESIS AT OXYGEN TENSIONS OF 21 AND 3PERCENT WERE MEASURED IN PISUM SATIVUM, VICIA FABA, HELIANTHUS ANNUS AND NICOTIANA RUSTICA PLANTS CULTIVATED UNDER VARIOUS CONDITIONS OF NITROGEN SUPPLY. THE DEGREE OF INHIBITION DUE TO OXYGEN WAS APPROXIMATELY THE SAME AT VARIOUS LIGHT INTENSITIES BUT GREATLY DIFFERED BETWEEN THE SPECIES (18PERCENT IN H. ANNUS L. AND UP TO 44.5PERCENT IN N. RUSTICA L.). THE DEGREE OF INHIBITION WAS APPRECIABLY SMALLER IF THE PLANTS WERE ADEQUATELY SUPPLIED WITH NITROGEN OR IF THE CO SUB2 CONCENTRATION INCREASED, PROVIDING THESE FACTORS ENHANCED THE ACTIVITY OF THE PHOTOSYNTHETIC APPARATUS AND THE RATE OF PHOTOSYNTHESIS. AN O SUB2 CONCENTRATION OF 21PERCENT NOT ONLY SUPPRESSES PRIMARY FIXATION OF CO SUB2 BUT ALSO REDUCTION OF NITRATES. FACILITY: K. A. TIMIRIAZEV INSTITUTE OF PLANT PHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

USSR

UDC: 535.373.2

BROUDE, V. L., DOLGANOV, V. K., SLOBODSKOY, F. V., SHEKA, Ye. F., Institute of Solid State Physics, Academy of Sciences of the USSR

"Exciton-Phonon Interaction and Energy Transfer in a Benzene Crystal and in Isotopically Admixed Deuterobenzene Crystals"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 2, Feb 73, pp 311-317

Abstract: The paper presents the results of studies done at 4.2-20°K on exciton-phonon and vibron-phonon absorption and luminescence spectra of a benzene-d_0 crystal and an isotopically admixed crystal of d_0-benzene in d_6-benzene. The energy of interaction between electron and vibron excitations on the one hand and phonons on the other hand is determined, as well as the probabilities of the corresponding phototransitions. The energy transfer between the dopant molecules is determined in the isotopically admixed crystal. The authors thank Ye. M. Rodina for doing the computer calculations.

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Psychiatry & Psychology

USSR

UDC 616.893-008.452.4

ALIKOV, KH. A., and SLOBODSKOY, I. SH., Chair of Psychiatry, Tashkent Institute for the Advanced Training of Physicians

"Oneiroid Syndrome in Some Acute Exogenous-Organic Psychoses"

Moscow, Zhurnal Neuropatologii i Psikhiatrii-Organic Psychoses"

Korsakov, Vol 73, Vyp 1973, pp 1208-1213

Abstract: Seventy-three patients with acute alcoholic, rheumatic and traumatic psychoses accompanied by oneiroid syndrome were observed. Two varients of the syndrome in alcoholic psychoses are described, differing as to whether delirium and hallucinations preceded the oneiroid onset, while three are found in traumatic psychoses, differing in the time between the trauma and the beginning of the psychoses. In all cases the oneiroid state was characterized by fewer catatonic states and dreamlike symptoms than in schizophrenia. The Kandinsky-Clerambault syndrome was rudimentary. Vegetative vascular, vestibular and psychosensory disturbances, as well as hallucinations, were important. In these cases the oneiroid state as a rule appeared after the disease had progressed considerably, when there was a tendancy to organic personality changes.

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1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT

TITLE--LOW FREQUENCY OSCILLATIONS IN A HOT CATHODE PENNING DISCHARGE PLASMA -U-

AUTHOR-(03)-NAUMOVETS, V.G., ROMANYUK, L.I., SLOBODYAN, V.M.

COUNTRY OF INFO--USSR

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, MAR. 1970, P. 377-390

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DISCHARGE PLASMA, LOW FREQUENCY, OSCILLATION, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2044 STEP NO--UR/0185/70/015/000/0377/0390

CIRC ACCESSION NO--AP0120687

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--30OCT

CIRC ACCESSION NO--AP0120687

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF LOW FREQUENCY (1 TO 100 KHZ) OSCILLATIONS IN A HOT CATHODE PENNING DISCHAR PLASMA, AND ANALYSIS OF THEIR INFLUENCE ON ION EXTRACTION SYSTEMS USED WITH THIS TYPE OF DISCHARGE. IT IS SHOWN THAT THE INSTABILITY ARISES DUE TO THE ONSET OF DENSITY WAVES WHOSE AZIMUTHAL DIRECTION OF PROPAGATION COINCIDES WITH THE DIRECTION OF PLASMA ROTATION IN CROSSED MAGNETIC AND ELECTRIC FIELDS AND WITH THE DIRECTION OF ELECTRON DRIFT CAUSED BY A RADIAL PLASMA DENSITY GRADIENT. THREE AZIMUTHAL MODES WER OBSERVED, CORRESPONDING TO DIFFERENT MAGNETIC FIELD STRENGTHS. THE EFFECTS OF DISCHARGE PARAMETERS (CURRENT, VOLTAGE, GAS PRESSURE, AND MAGNETIC FIELD STRENGTH) ON THE OSCILLATION FREQUENCY AND PLASMA CHARACTERISTICS ARE DESCRIBED. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT FIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--METHODS FOR MODELLING THE NONABRASIVE WEAR OF MACHINE FRICTION PARTS -U-

AUTHOR-(02)-SLOBODYANNIKOV, S.S., SLOBODYANNIKOV, L.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE, NO. 1, 1970, PP 22-25

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ABRASIVE, FRICTION, ELECTRONIC TEST EQUIPMENT, PIEZOELECTRIC TRANSDUCER/(U)AE5 FRICTION MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0533 STEP NO--UR/0145/70/000/001/0022/0025

CIRC ACCESSION NO--AT0100987

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 026

CIRC ACCESSION NO--AT0100987

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON CERTAIN SUPPOSITIONS IN ENGINEERING CYBERNETICS AND "BLACK BOX" STRATEGY, A METHOD IS PRESENTED FOR COMPUTING EXPERIMENTAL FRICTION PAIRS FOR WEAR. THE MODELLING METHOD DEVELOPED MAKES IT POSSIBLE TO STUDY NONABRASIVE WEAR AND TO FIND THE MAGNITUDE OF FRICTION PAIR WEAR, BASED ON A VERY LIMITED AMOUNT OF INFORMATION ON THE PHYSICAL CHEMICAL PROCESSES OCCURING IN THE CONTACT ZONE. DATA ON THE FRICTION FORCES WAS OBTAINED USING AN AE-5 FRICTION (TESTING) MACHINE EQUIPPED WITH A SPECIAL PIEZOELECTRIC TRANSDUCER AND OSCILLOGRAPHIC OUTPUT FOR ANALYSIS. THE RECORDINGS ATTEST TO THE FACT THAT FRICTION FORCE IS A RANDOM DYNAMIC PROCESS HAVING THE QUALITIES OF STEADINESS AND ERGODICITY. THE METHODS DEVELOPED BY THE AUTHORS ARE DEEMED SUITABLE FOR PRACTICAL PURPOSES AND THE ACCURACY FALLS WITHIN ACCEPTABLE ERROR LIMITS (NO MORE THAN 12PERCENT).

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--METHODS FOR MODELLING THE NONABRASIVE WEAR OF MACHINE FRICTION PARTS -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON CERTAIN SUPPOSITIONS IN ENGINEERING CYBERNETICS AND "BLACK BOX" STRATEGY, A METHOD IS PRESENTED FOR COMPUTING EXPERIMENTAL FRICTION PAIRS FOR WEAR. THE MODELLING METHOD DEVELOPED MAKES IT POSSIBLE TO STUDY NONABRASIVE WEAR AND TO FIND THE MAGNITUDE OF FRICTION PAIR WEAR, BASED ON A VERY LIMITED AMOUNT OF INFORMATION ON THE PHYSICAL CHEMICAL PROCESSES OCCURING IN THE CONTACT ZONE. DATA ON THE FRICTION FORCES WAS OBTAINED USING AN AE-5 FRICTION (TESTING) MACHINE EQUIPPED WITH A SPECIAL PIEZOELECTRIC TRANSDUCER AND OSCILLOGRAPHIC OUTPUT FOR ANALYSIS. THE RECORDINGS ATTEST TO THE FACT THAT FRICTION FORCE IS A RANDOM DYNAMIC PROCESS HAVING THE QUALITIES OF STEADINESS AND ERGODICITY. THE METHODS DEVELOPED BY THE AUTHORS ARE DEEMED SUITABLE FOR PRACTICAL PURPOSES AND THE ACCURACY FALLS WITHIN ACCEPTABLE ERROR LIMITS (NO MORE THAN 12PERCENT).

UNCLASSIFIED

Stress Analysis and Stability Studies

USSR

UDC 539.3

SLOBODYANYUK, A. P., Odessa State University

"The Impression of Two Dies Into a Nonhomogeneous Half-Plane"

Kiev, Prikladnaya Mekhanika, Vol 9, No 1, Jan 73, pp 73-79

Abstract: Consideration is given to a two-dimensional contact problem for a nonhomogeneous half-plane, the elasticity modulus of which varies in accordance with the law of $E=E_1 z^{\gamma}$ $(0 \leqslant \gamma < 1)$ in the presence of two contact sectors. A means of reducing this problem to infinite systems of algebraic equations is indicated on the basis of the method of orthogonal polynomials. A study is made of systems involving the impression of two identical flat dies, in the case of isolated ones and for coupled ones, into a nonhomogeneous half-plane. A specific problem dealing with the impression of two identical, flat, coupled dies into a base is examined in order to verify the convergence of the approximate solution. 2 figures, 1 table, 9 references.

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USSR

UDC 616.986.7-08

PLETNEV, V. M., MITCHENKO, I. K., and SLOBODYANYUK, M. I., Chair of Infecticus Diseases, Kiev Institute of Advanced Training of Physicians

"Treatment of Different Forms of Leptospirosis"

Kiev, Vrachebnoye Delo, No 10, 1971, pp 149-152

Abstract: Leptospirosis can be divided into the febrile, cardiovascular, and hepatorenal forms on the basis of the main symptoms and treatment should be differentiated accordingly. Antibiotics and vitamins are fairly effective in the febrile form, but the cardiovascular forms require in addition cocarboxylase, glucose, and in some cases cardiac stimulants. Hormones should be prescribed with great caution. Patients with the hepatorenal form are given antibiotics, hormones (prednisolone, hydrocortisone, etc.) theophylline ethylenediamine (Diaphylline) in addition to antihemorrhagic agents. In severe cases where coma is present or threatens, vigorous efforts should be made to relieve acidosis, normalize water-mineral metabolism, and correct hypokaliemia.

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USSR UDC 616.986.7-07

MITCHENKO, I. K., PLETNEV, V. M., and SLOBODYANYUK, M. I., Chair of Infectious Diseases, Kiev Institute for the Advanced Training of Physicians, Kiev

"Some Clinical Characteristics of Leptospirosis"

Kiev, Vrachebnoye Delo, No 6, Jun 71, pp 138-142

Abstract: A study was conducted of cases of leptospirosis treated in recent years at the Clinic of Infectious Diseases of the authors' institute. The majority of patients were infected by contact with water during swimming or fishing, some of them worked at animal husbandry farms, and one of them (the only one who was infected in the winter) worked at a meat combine. In the 18 cases studied, leptospirosis was confirmed by isolation of Leptospira or by the agglutinationlysis reaction with various Leptospira strains, L. pomona, V. bataviae, L. canicola, and L. icterohaemmorrhagiae in 3, 4, 3, and 4 cases respectively). The clinical manifestations of leptospirosis were manifold. An ictero-nephritic syndrome was present in the majority of cases (17 of 18). The feverish, cardiovascular, and hepatorenal forms of the disease were observed in 9, 4, and 5 patients, respectively. The neuromuscular apparatus of patients was affected with the result that myocarditis developed in some cases, so that observation for prolonged periods of time after the end of

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USSR

MITCHENKO, I. K., et al., Vrachebnoye Delo, No 6, Jun 71, pp 138-142

hospitalization was necessary. The worker at the meat combine died on the ninth day of the disease after myocarditis and azotemic uremia had developed. Pathological anatomical investigation confirmed that myocarditis, necrotic nephritis, and anuria were present.

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USSR

UDC 539.385

SLOBODYANYUK, V. YA.

"Investigation of the Strength and Longevity Characteristics of Duralumin for Stretching Impact and Impactless Cyclic Loads"

Sb. Nauch, Tr. Kiyev. In-t Grazhd. Aviatsii (Collection of Works of the Kiev Institute of Civil Aviation Engineers, No 4, 1971, pp 53-53 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1380 by P. F. Koshelev)

Translation: Cylindrical samples of aluminum alloy D1T with smooth turning, annular incisions, and transverse drillings were tested on a multiple-stroke ram impact machine with a frequency of 600 impacts per minute and on a hydraulic machine with a frequency of 750 cycles per minute. The endurance and longevity of the alloys with impact stress is lower than with impactless stress. In the presence of stress concentrators, the notch-sensitivity characterized by values the effective stress-concentration coefficients, is greater with axial impact loads. The rule governing the influence of the impact character of loading for alloy D1T are qualitatively the same as for steels. The different number of repeated impact loads not affect the character of failure of smooth samples with succeeding static elongation, and failure takes place by small area at an angle of approximately 45° to the axis of the sample, in other words it remains viscous. 1/1

USSR

UDC 621.396.96:681.3(02)

SLOKA, V. K.

Voprosy orbrabotki radiolokatsionnykh signalov (Problems of Processing Radar Signals), Moscow, Soviet Radio Press, 1970, 256 pp (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G26)

Translation: This paper contains an investigation of the problems of selecting optimal radar signals and methods of processing them. The output signals of filtration devices are described, and the problems of signal detection against a background of noise and other signals, problems of measuring signal parameters and principles of construction and technical realization of the processing devices are described. The principles of construction of analog electronic filters using ultrasonic delay lines, digital discrete filters and also filters using optical methods of signal processing are investigated in more detail.

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USSR

UDC 547.558.1

ZHMUROVA, I. N., TOLMACHEV, A. I., YURCHENKO, R. I., and SLOMINSKIY, Yu. L., Institute of Organic Chemistry, Ukrainian Academy of Sciences

"The Auxochromic Action of the Phosphazo Group"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2553-2557

Abstract: In various symmetrical and asymmetrical thiacarbocyanines, styryls and merocyanines tested, it was found that the triphenylphosphazo group has the same auxochromic effect as the dimethylamino group.

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USSR

UDC 612.53+612.743

SLONIM, A. D. and TUMAKOVA, N. M., Institute of Cytology and Genetics, Academy of Sciences USSR, Siberian Division, Novosibirsk

"Thermoregulatory Electrical Activity of Different Kinds of Muscle Fibers in White Rats Adapted to Cold"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 4, 1973, pp 590-594

Abstract: Study of electrical activity in the deep part of the rat anterior tibial muscle, which consists chiefly of slow fibers, showed that it is much higher when the animal is cooled than in the periphery of the muscle, which consists of fast fibers. Thermoregulatory electrical activity of the slow fibers during acute cooling is not only higher (8 to 10 times higher) but more variable than that of the fast fibers. However, in the course of adaptation to cold the difference tends to level out owing to the marked decrease in activity of the slow fibers. Adaptive changes in thermoregulatory muscle contractility associated with intensified heat production is concentrated largely in the slow fibers.

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USSR

UDC 612.53+612.58

SLONIM, A. D., and SHVETSOVA, YE. I., Department of Ecological Physiology, Institute of Cytology and Genetics, Siberian Department, Academy of Sciences USSR , Novosibirsk

"Chemical Thermoregulation After 'Accelerated' Adaptation to the Cold"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1262-1267

Abstract: Metabolic and electromyographic reactions during chemical thermoregulation are compared for rats subjected to longterm, uninterrupted "slow" cooling, or intermittent "rapid adaptation" cooling of varying intensities and durations. One-time or two-time cooling which caused a lowering of internal temperature to 30°C and intermittent cooling (15 periods of 2 minutes at -20°C), which caused no decrease in internal temperature, both yielded long-term after-effects. These included a greater internal stability to cooling, lowered muscle electrical activity and increase in O_2 requirement. The intermittent cooling is said to cause a more effective adaptation to cold than long-term cooling.

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USSR

UDC 591.525:591:133.1

SLONIM, A. D., Institute of Physiology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Physiological Adaptations of Some Rodents to Arid Zones"

Moscow, Zhurnal Obshche Biologii, Vol 31, No 4, Jul/Aug 70, pp 415-423

Abstract: A review is presented of the literature on physiological adaptations to arid zones. Gerbils (Rhombomys opimus, Meriones meridianus, and others) are ideal subjects for the study of such adaptations. These central-asiatic desert species can survive both extreme temperatures and rapid evaporation. They have adapted to insufficient water supply, excess mineral salts, high temperature, and isolation. For adult gerbils, heat and isolation are extremely powerful stimulants for digging activity. Adaptation to insufficient water supply has included reduction of water loss through the kidneys, intestine, and skin surface and in respiration. In some species, seasonal shifts, in these functions are observed. Excretion of salts in the urine is limited, and is replaced by excretion through the intestines. It is postulated that hyaluronidase and an antidiuretic hormore may be factors in this adaptation to a scarcity of water. The animals also reduce water intake by entering a state of hibernation, involving a change in the activity of the hypothalamus-pituitary and neurosecretory systems. The most profound physiological changes

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USSR

SLONIM, A. D., Zhurnal Obshche Biologii, Vol 31, No 4, Jul/Aug 70, pp 415-423

during dehydration take place in the large cells of the alveolar epithelium, which cease to be differentiated on the sixth or seventh day of water deprivation. The overall exchange volume of the lungs is likewise decreased. Reabsorption of water by the organism appears to be related to changes in the enzymes which control the permeability of mucopolysaccharides. Adaptation to high temperatures, isolation, and seasonal changes have also been related to the secretory adaptation of the stomach (pH, reduction in pepsin concentration, pancreatic secretions, etc.). Additional studies are needed to further elucidate the mechanisms involved in maintaining life under extreme conditions.

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USSR

UDC: 621.31.043:006.12

KOSTENKO, M. P., KOSTENKO, M. V., NEYMAN, L. R., PETROV, G. N., POPKOV, V. I., SLONIM, M. A., Leningrad, Moscow

"Goals of the Scientific Council of the Academy of Sciences of the USSR on Theoretical and Electrophysical Problems of Electric Power Engineering, and the Work of the Council in 1969-1970"

Moscow, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71, pp 28-38

Abstract: The goals of the Council and its activities for the years 1969-1970 are explained by the chairmen of the five sections of the Council: Academician M. P. Kostenko, chairman of the first section on theoretical problems of generation of electromagnetic energy, Corresponding Member of the Academy of Sciences of the USSR G. N. Petrov, chairman of the second section on problems of electromagnetic field theory in electric power and electrophysical devices, Academician L. R. Neyman, chairman of the third section on problems in the theory of nonlinear electric circuits of complex electric power and electromechanical devices, Corresponding Member of the Academy of Sciences of the USSR M. V. Kostenko, chairman of the fourth section on theoretical problems of electrophysically high voltages, and Academician V. I. Popkov, chairman of the fifth

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USSR

KOSTENKO, M. P., et al, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71, pp 28-38

section on electrophysical processes in gases under high pressure, and scientific problems associated with creating transfers and equipment with insulation by compressed gases. A historical review is given of the aims of each section, its future goals are outlined, and the work done by each section in 1969-1970 is outlined together with plans for 1971.

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USSR

UDC: 621.31.043:006.12

KOSTENKO, M. P., KOSTENKO, M. V., NEYMAN, L. R., PETROV, G. N., POPKOV, V. I., SLONIM, M. A., Leningrad, Moscow

"Goals of the Scientific Council of the Academy of Sciences of the USSR on Theoretical and Electrophysical Problems of Electric Power Engineering, and the Work of the Council in 1969-1970"

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USSR

KOSTENKO, M. P., et al, Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 2, Mar/Apr 71, pp 28-38

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SLONIMSKAYA, M. V.

Lunar geology

PROBLEMS OF LUNAR GEOLOGY

Edited by A. V. Peyve

Translation of "Problemy Geologii Luny."
"Nauka" Press, Moscow, 1969

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